

## WHAT IS CLAIMED IS:

1. A contactless data communication system, comprising:
  - a contactless identification tag having first identification information inherent to the contactless identification tag and comprising:
    - a drive power generation means to generate drive power from an electromagnetic wave used for a power supply sent from a data communication system;
    - an acquisition request receiving means to receive an acquisition request of the first identification information from the data communication system; and
    - an identification information sending means to send the first identification information to the data communication system in response to the acquisition request of the first identification information received by the acquisition request receiving mean;
  - the data communication system having a second identification information inherent to the data communication system comprising:
    - an electromagnetic wave sending means for supplying power, which sends the electromagnetic wave used for the power supply to the contactless identification tag;
    - an identification information acquisition means to acquire the first identification information from the contactless identification tag existing within an area where communication is made;
    - an information sending means to send the second identification information inherent to the data communication system and the first identification information acquired by the identification information acquisition means to other data communication systems;
    - an information acquisition means to acquire the second identification information inherent to the other data communication systems and the first

identification information acquired in the other data communication systems from the other data communication systems; and

a position information computation means to compute position information of the contactless identification tag based on the second identification information and the first identification information acquired from the other data communication systems.

2. The contactless data communication system according to claim 1, wherein a specific data communication system, which is selected among the data communication system and the other data communication systems, acquires the second identification information inherent to the other data communication systems and the first identification information acquired in the other data communication systems from other data communication systems by the information acquisition means, and computes the position information of the contactless identification tag based on the second identification information and the first identification information acquired from the other data communication systems by the position information computation means.

3. The contactless data communication system according to claim 2, wherein the data communication system further comprises a communication status information sending means to send communication status information indicating a predetermined communication status of the data communication system and the contactless identification tag to the specific data communication system, and the position information computation means computes the position information of the contactless identification tag based also on the communication status information sent by the communication status information sending means.

4. The contactless data communication system according to claim 3, wherein the communication status information is a radio field intensity of the electromagnetic wave received from the contactless identification tag.

5. The contactless data communication system according to claim 4, wherein the data communication system further comprises a direction estimation means to estimate a direction where the contactless identification tag exists based on the radio field intensity of the electromagnetic wave received from the contactless identification tag, and the communication status information sending means sends direction information estimated by the direction estimation means as the communication status information to the specific data communication system.

6. The contactless data communication system according to claim 1, wherein the data communication system further comprises an information retention means to retain time information and the first identification information of the contactless identification tag existing within a communication range of the data communication system.

7. The contactless data communication system according to claim 6, wherein the data communication system further comprises:

a first retained-contents acquisition means to acquire retained contents of the information retention means from the other data communication systems;

a first retained-contents sending means to send the retained contents to the other data communication systems in response to an acquisition request of the retained contents from other data communication systems; and

a first move record computation means to compute a move record of the contactless identification tag based on the retained contents acquired from the

other data communication systems by the first retained contents acquisition means when the data communication system is selected as a specific data communication system.

8. A position information management system to manage position information of a predetermined article in the contactless data communication system according to claim 1, comprising:

a management system for managing position information of a predetermined article so as to enable data communication with the data communication system and the other data communication systems;

a data communication system selection means to select a specific data communication system among the data communication system and the other data communication systems; and

an acquisition request sending means to send an acquisition request of position information of the predetermined article to the specific data communication system selected by the data communication system selection means, and the specific data communication system is constituted as to compute the position information of the contactless identification tag based on the second identification information acquired from the other data communication systems and the first identification information of the contactless identification tag that is associated with the predetermined article of the acquisition request, in response to the acquisition request sent from the management system, by the position information computation means, and includes a position information sending means to send position information computed by the position information computation means to the management system.

9. The position information management system according to claim 8, wherein the management system comprises a second retained-contents acquisition means to acquire retained contents of an information retention means from the data communication system, and a second move record computation means to compute a move record of the contactless identification tag based on the retained contents acquired from the data communication system, and the data communication system comprises a second retained-contents sending means to send the retained contents to the management system in response to an acquisition request of the retained contents.

10. A contactless identification tag, comprising:  
first identification information that is identification information inherent to the contactless identification tag;

a drive power generation means to generate drive power from an electromagnetic wave used for a power supply sent from a data communication system;

an acquisition request receiving means to receive an acquisition request of the first identification information from the data communication system; and

an identification information sending means to send the first identification information to the data communication system in response to the acquisition request of the first identification information received by the acquisition request receiving means.

11. A data communication system, comprising:  
second identification information that is identification information inherent to the data communication system;

an electromagnetic wave sending means for supplying power, which

sends electromagnetic wave used for a power supply to a contactless identification tag;

an identification information acquisition means to acquire first identification information from the contactless identification tag existing within an area where communication is made;

an information sending means to send the second identification information inherent to the data communication system and the first identification information acquired by the identification information acquisition means to other data communication systems;

an information acquisition means to acquire the second identification information inherent to the other data communication systems and the first identification information acquired in the other data communication systems from the other data communication systems; and

a position information computation means to compute position information of the contactless identification tag based on the second identification information and the first identification information acquired from other data communication systems.

12. The data communication system according to claim 11, further comprising:

a data communication system selection means to select a specific data communication system among the data communication system and the other data communication systems; and

an acquisition request sending means to send an acquisition request of position information of a predetermined article to the specific data communication system selected by the data communication system selection means.

13. The data communication system according to claim 12, wherein when selected as the specific data communication system by the data communication system selection means, the data communication system computes position information of the contactless identification tag based on the second identification information acquired from other data communication systems and the first identification information of the contactless identification tag that is associated to the predetermined article of the acquisition request, in response to the acquisition request sent from a management system, by the position information computation means, and includes a position information sending means to send the position information computed by the position information computation means to the management system.

14. A program for controlling a contactless identification tag, comprising:

an acquisition request receiving step to receive an acquisition request of first identification information from a data communication system; and

an identification information sending step to send the first identification information to the data communication system in response to the acquisition request of the first identification information from the data communication system, received at the acquisition request receiving step.

15. A program for controlling a data communication system, comprising:

a sending step of an electromagnetic wave used for a power supply, which sends an electromagnetic wave used for a power supply to a contactless identification tag;

an identification information acquisition step to acquire first identification information from the contactless identification tag existing within

an area where communication can be made;

an information sending step to send second identification information inherent to a data communication system and the first identification information acquired to other data communication systems at the identification information acquisition step;

an information acquisition step to acquire the second identification information inherent to the other data communication systems and the first identification information acquired in the other data communication systems from the other data communication systems; and

a position information computation step to compute position information of the contactless identification tag based on the second identification information and the first identification information acquired from other data communication systems.

16. A program for controlling a management system according to claim 15, comprising:

a data communication system selection step to select a specific data communication system among the data communication system and the other data communication systems; and

an acquisition request sending step to send an acquisition request of position information of a predetermined article to the specific data communication system selected at the data communication system selection step.

17. A program for controlling the data communication system according to claim 16, wherein when selected as a specific data communication system at the data communication system selection step, the program for controlling the data communication system computes position information of the



contactless identification tag based on the second identification information acquired from other data communication systems and the first identification information of the contactless identification tag that is associated to the predetermined article of the acquisition request, in response to the acquisition request sent from a management system, at the position information computation step, and includes a position information sending step to send the position information computed at the position information computation step to the management system.

18. A contactless data communication system, comprising:
  - a contactless identification tag having first identification information inherent to the contactless identification tag and comprising:
    - a drive power generation device to generate drive power from an electromagnetic wave used for a power supply sent from a data communication system;
    - an acquisition request receiving device to receive an acquisition request of the first identification information from the data communication system; and
    - an identification information sending device to send the first identification information to the data communication system in response to the acquisition request of the first identification information received by the acquisition request receiving device;
  - the data communication system having a second identification information inherent to the data communication system comprising:
    - an electromagnetic wave sending device for supplying power, which sends the electromagnetic wave used for the power supply to the contactless identification tag;
    - an identification information acquisition device to acquire the first identification information from the contactless identification tag existing within

an area where communication is made;

an information sending device to send the second identification information inherent to the data communication system and the first identification information acquired by the identification information acquisition means to other data communication systems ;

an information acquisition device to acquire the second identification information inherent to the other data communication systems and the first identification information acquired in the other data communication systems from the other data communication systems; and

a position information computation device to compute position information of the contactless identification tag based on the second identification information and the first identification information acquired from the other data communication systems.

19. The contactless data communication system according to claim 18, wherein a specific data communication system, which is selected among the data communication system and the other data communication systems, acquires the second identification information inherent to the other data communication systems and the first identification information acquired in the other data communication systems from other data communication systems by the information acquisition device, and computes the position information of the contactless identification tag based on the second identification information and the first identification information acquired from the other data communication systems by the position information computation device.

20. The contactless data communication system according to claim 2, wherein the data communication system further comprises a communication status information sending device to send communication status information

indicating a predetermined communication status of the data communication system and the contactless identification tag to the specific data communication system, and the position information computation device computes the position information of the contactless identification tag based also on the communication status information sent by the communication status information sending device.